NETWORK+ EXAMINATION OBJECTIVES

This book covers all of the Network+ examination objectives, which were released by CompTIA (the Computing Technology Industry Association) in January, 2002. The official list of objectives is available at CompTIA's web site, at *www.comptia.org*. For your reference, the following table lists each exam objective and the chapter of this book that explains the objective, plus the amount of the exam that will cover each topic. Each objective belongs to one of four domains (or main topics) of networking expertise. For example, the objective of recognizing an RJ-45 connector belongs to the "Media and Topologies" domain, which accounts for 20 per-cent of the exam's content.

Domain 1.0 Media and Topologies – 20% of Examination

Table A-1   Network+ Examination Objectives—Media and Topologies

Objective	Chapter	Percentage of Exam Questions Devoted to this Topic
1.1 Recognize the following logical or physical network topologies given a schematic diagram or description:		3
Star/hierarchical	1, 5	
Bus	1, 5	
Mesh	5	
Ring	1, 5	
Wireless	4	
1.2 Specify the main features of 802.2 (LLC), 802.3 (Ethernet), 802.5 (token ring), 802.11b (wireless), and FDDI networking technologies, including:		3
Speed	4, 5	
Access	4, 5	
Method	5	
Topology	5	
Media	4, 5	
1.3 Specify the characteristics (e.g., speed, length, topology, cable type, etc.) of the following technologies:		3
802.3 (Ethernet) standards	4, 5	
10BaseT	4, 5	
100BaseT	4, 5	
100BaseTX	4, 5	
10Base2	4, 5	
10Base5	4, 5	
100BaseFX	4, 5	
Gigabit Ethernet	4, 5	
1.4 Recognize the following media connectors and/or describe their uses:		3
RJ-11	4, Appendix C	
RJ-45	4, Appendix C	
AUI	4, Appendix C	
BNC	4, Appendix C	
ST	4, Appendix C	
SC	4, Appendix C	

Table A-1   Network+ Examination Objectives—Media and Topologies (continued)

Objective	Chapter	Percentage of Exam Questions Devoted to this Topic
1.5 Choose the appropriate media type and connectors to add a client to an existing network.	4	3
1.6 Identify the purpose, features, and functions of the following network components:		5
Hubs	4, 6	
Switches	6	
Bridges	6	
Routers	6, 15	
Gateways	6, 11	
CSU/DSU	7	
Network Interface Cards/ISDN adapters/system area network cards	6, 7	
Wireless access points	4, 7	
Modems	4, 7	

Domain 2.0 Protocols and Standards – 25% of Examination

Table A-2   Network+ Examination Objectives—Protocols and Standards

Objective	Chapter	Percentage of Exam Questions Devoted to this Topic
2.1 Given an example, identify a MAC address.	3, 6	1
2.2 Identify the seven layers of the OSI Model and their functions.	2, 6, 11, 12	2
2.3 Differentiate between the following network protocols in terms of routing, addressing schemes, interoperability, and naming conventions:		2
TCP/IP	3, 11	
IPX/SPX	3, 9	
NetBEUI	3	
AppleTalk	3	

Table A-2   Network+ Examination Objectives—Protocols and Standards (continued)

Objective	Chapter	Percentage of Exam Questions Devoted to this Topic
2.4 Identify the OSI layers at which the following network components operate:		2
Hubs	2, 6	
Switches	6	
Bridges	6	
Routers	2, 6	
Network Interface Cards	2, 6	
2.5 Define the purpose, function and/or use of the following protocols within TCP/IP:		2
IP	3, 11	
TCP	3, 11	
UDP	3, 11	
FTP	3, 11	
TFTP	11	
SMTP	11	
HTTP	11	
HTTPS	11	
POP3/IMAP4	11	
Telnet	3, 11	
ICMP	3, 11	
ARP	3, 11	
NTP	11	
2.6 Define the function of TCP/UDP ports. Identify well-known ports.	11	2
2.7 Identify the purpose of the following network services:		2
DHCP	11	
BOOTP	11	
DNS	11	
NAT/ICS	11	
WINS	11	
SNMP	11	
2.8 Identify IP addresses (IPv4 and IPv6) and their default subnet masks.	3, 11	2
2.9 Identify the purpose of subnetting and default gateways.	11	2

Table A-2   Network+ Examination Objectives—Protocols and Standards (continued)

Objective	Chapter	Percentage of Exam Questions Devoted to this Topic
2.10 Identify the differences between public vs. private networks.	7, 11, 15	2
2.11 Identify the basic characteristics (e.g., speed, capacity, media) of the following WAN technologies:		2
Packet switching vs. circuit switching	4, 7	
ISDN	7	
FDDI	5	
ATM	5	
Frame Relay	7	
SONET/SDH	7	
T1/E1	7	
T3/E3	7	
OCx	7	
2.12 Define the function of the following remote access protocols and services:		2
RAS	7	
PPP	7	
PPTP	7	
ICA	7	
2.13 Identify the following security protocols and describe their purpose and function:		2
IPSec	15	
L2TP	15	
SSL	15	
Kerberos	15	

Domain 3.0 Network Implementation – 23% of Examination

Table A-3   Network+ Examination Objectives—Network Implementation

Objective	Chapter	Percentage of Exam Questions Devoted to this Topic
3.1 Identify the basic capabilities (i.e., client support, interoperability, authentication, file and print services, application support, and security) of the following server operating systems:		4
UNIX/Linux	10	
NetWare	9	
Windows	8	
Macintosh	8	
3.2 Identify the basic capabilities (i.e., client connectivity, local security mechanisms, and authentication) of the following clients:		2
UNIX/Linux	10	
Windows	2, 3, 9	
Macintosh	2, 3, 9	
3.3 Identify the main characteristics of VLANs.	6, 7	2
3.4 Identify the main characteristics of network attached storage.	14	2
3.5 Identify the purpose and characteristics of fault tolerance.	14	2
3.6 Identify the purpose and characteristics of disaster recovery.	14	2
3.7 Given a remote connectivity scenario (e.g., IP, IPX, dial-up, PPPoE, authentication, physical connectivity, etc.), configure the connection.	7	2
3.8 Identify the purpose, benefits, and characteristics of using a firewall.	15	2
3.9 Identify the purpose, benefits, and characteristics of using a proxy.	15	2
3.10 Given a scenario, predict the impact of a particular security implementation on network functionality (e.g., blocking port numbers, encryption, etc.).	15	2
3.11 Given a network configuration, select the appropriate NIC and network configuration settings (DHCP, DNS, WINS, protocols, NetBIOS/host name, etc.).	3, 6, 11	2

Domain 4.0 Network Support – 32% of Examination

Table A-4   Network+ Examination Objectives—Network Support

Objective	Chapter	Percentage of Exam Questions Devoted to this Topic
4.1 Given a troubleshooting scenario, select the appropriate TCP/IP utility from among the following:		3
Tracert	11, 12	
Ping	3, 11, 12	
Arp	3, 11, 12	
Netstat	11	
Nbtstat	11	
Ipconfig	11, 12	
Ifconfig	11, 12	
Winipcfg	11, 12	
Nslookup	11	
4.2 Given a troubleshooting scenario involving a small office/home office network failure (e.g., xDSL, cable, home satellite, wireless, POTS), identify the cause of the failure.	4, 6, 7, 12	2
4.3 Given a troubleshooting scenario involving a remote connectivity problem (e.g., authentication failure, protocol configuration, physical connectivity), identify the cause of the problem.	7, 12	2
4.4 Given specific parameters, configure a client to connect to the following servers:		2
UNIX/Linux	3, 6, 10	
NetWare	3, 6, 9	
Windows	3, 6, 8	
Macintosh	3, 5, 6, 8	
4.5 Given a wiring task, select the appropriate tool (e.g., wire crimper, media tester/certifier, punch down tool, tone generator, optical tester, etc.).	4, 12, Appendix E	2
4.6 Given a network scenario, interpret visual indicators (e.g., link lights, collision lights, etc.) to determine the nature of the problem.	6, 12	2
4.7 Given output from a diagnostic utility (e.g., tracert, ping, ipconfig, etc.), identify the utility and interpret the output.	11	2

Table A-4 Network+ Examination Objectives—Network Support (continued)

Objective	Chapter	Percentage of Exam Questions Devoted to this Topic
4.8 Given a scenario, predict the impact of modifying, adding, or removing network services (e.g., DHCP, DNS, WINS, etc.) on network resources and users.	11, 12	2
4.9 Given a network problem scenario, select an appropriate course of action based on a general troubleshooting strategy. This strategy includes the following steps:		4
1. Establish the symptoms	12	
2. Identify the affected area	12	
3. Establish what has changed	12	
4. Select the most probable cause	12	
5. Implement a solution	12	
6. Test the result	12	
7. Recognize the potential effects of the solution	12, 13	
8. Document the solution	12, 13	
4.10 Given a troubleshooting scenario involving a network with a particular physical topology (i.e., bus, star/hierarchical, mesh, ring, or wireless) and including a network diagram, identify the network area affected and the cause of the problem.	1, 4, 5, 7, 12	3
4.11 Given a network troubleshooting scenario involving a client connectivity problem (e.g., incorrect protocol/client software/authentication configuration, or insufficient rights/permissions), identify the cause of the problem.	2, 3, 8, 9, 10, 11, 12	5
4.12 Given a network troubleshooting scenario involving a wiring/infrastructure problem, identify the cause of the problem (e.g., bad media, interference, network hardware).	4, 12	3